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1 An analysis of selected computer interchange color spaces

James M. Kasson, Wil Plouffe

October 1992 **ACM Transactions on Graphics (TOG)**, Volume 11 Issue 4Full text available: [pdf\(3.77 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Important standards for device-independent color allow many different color encodings. This freedom obliges users of these standards to choose the color space in which to represent their data. A device-independent interchange color space must exhibit an exact mapping to a colorimetric color representation, ability to encode all visible colors, compact representation for given accuracy, and low computational cost for transforms to and from device-dependent spaces. The performance of CIE 1931 ...

Keywords: CIE 1931 XYZ, CIELAB, CIELUV, SMPTE-C RGB, YCbCr, YES, color, color models, color spaces, device-independent color, quantization

2 Session P13: view-dependent techniques: Approximate shading for the re-illumination of synthetic images

Randy Scoggins, Raghu Machiraju, Robert J. Moorhead

October 2001 **Proceedings of the conference on Visualization '01**Full text available: [pdf\(562.89 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#) [Publisher Site](#)

This paper presents a novel method to estimate illumination-dependent properties in image synthesis prior to rendering. A preprocessing step is described in which a linear image basis is developed and a lighting-independent formulation defined. A reflection function, similar to hemispherical reflectance, approximates normal Lambertian shading. Intensity errors resulting from this approximation are reduced by use of a polynomial gamma correction function and scaling to a normalized display range. ...

Keywords: image metrics, level-of-detail, perception, rendering

3 Correcting for short-range spatial non-linearities of CRT-based output devices

R. Victor Klassen, Krishna Bharat

September 1993 **Proceedings of the 20th annual conference on Computer graphics and**

interactive techniquesFull text available:  pdf(434.64 KB) Additional Information: full citation, references, index terms**4 Generating gamma variates by a modified rejection technique**

J. H. Ahrens, U. Dieter

January 1982 **Communications of the ACM**, Volume 25 Issue 1Full text available:  pdf(722.65 KB) Additional Information: full citation, abstract, references, citations, index terms

A suitable square root transformation of a gamma random variable with mean $a \geq 1$ yields a probability density close to the standard normal density. A modification of the rejection technique then begins by sampling from the normal distribution, being able to accept and transform the initial normal observation quickly at least 85 percent of the time (95 percent if $a \geq 4$). When used with efficient subroutines for sampling from the normal and exponential ...

Keywords: acceptance-rejection method, gamma distribution, random numbers**5 Volume rendering: Shading for Fourier Volume Rendering**

Alireza Entezari, Randy Scoggins, Torsten Möller, Raghu Machiraju

October 2002 **Proceedings of the 2002 IEEE symposium on Volume visualization and graphics**Full text available:  pdf(735.46 KB) Additional Information: full citation, abstract, references, index terms

The work presented here describes two methods to incorporate viable illumination models into Fourier Volume Rendering (FVR). The lack of adequate illumination has been one of the impediments for the wide spread acceptance of FVR. Our first method adapts the Gamma Corrected Hemispherical Shading (GCHS) proposed by Scoggins et al. [11] for FVR. We achieve *interactive* rendering for constant diffusive light sources. Our second method operates on data transformed by spherical harmonic function ...

Keywords: fourier transform, fourier volume rendering, shading, spherical harmonics**6 Graphic Formats for Linux**

Gerald Graef

March 1996 **Linux Journal**Full text available:  html(25.46 KB) Additional Information: full citation, abstract, index terms

What ARE all those graphics storage formats and which should you use? Gerald Graef explains the methods and benefits

7 Achieving color uniformity across multi-projector displays

Aditi Majumder, Zhu He, Herman Towles, Greg Welch

October 2000 **Proceedings of the conference on Visualization '00**Full text available:  pdf(181.02 KB) Additional Information: full citation, citations, index terms**Keywords:** color calibration, large area display, projector graphics, tiled displays**8****Color consistency for digital multi-projector stereo display systems: the HEyeWall and**

the Digital CAVE

W. Kresse, D. Reiners, C. Knöpfler

May 2003 Proceedings of the workshop on Virtual environments 2003Full text available:  pdf(16.19 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Digital projectors have a significant advantage over CRTs for IPT setups: brightness. But they also have a number of disadvantages, one of which is color consistency. This problem is exacerbated when using the Infitec method for stereo separation, which in itself has some strong advantages for CAVE and tiled wall setups. In this paper we will describe a method for color and brightness correction of multi-projector display systems. The method itself is used in two new projection systems, which ar ...

9 An on-line image processing system

I. H. Barkdull, B. L. McGlamery

January 1968 Proceedings of the 1968 23rd ACM national conferenceFull text available:  pdf(2.04 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

The high-speed digital computer has contributed to significant progress in the field of optics. One particular area of optics benefiting from this progress is image processing. The purpose of image processing is to aid the human observer in extracting from an image information which has been obscured by some type of degradation. The numerous factors which can degrade the quality of an image in an optical system include lens aberrations, poor focus, image motion, turbulence, and di ...

10 The office of the future: a unified approach to image-based modeling and spatially immersive displays

Ramesh Raskar, Greg Welch, Matt Cutts, Adam Lake, Lev Stesin, Henry Fuchs

July 1998 Proceedings of the 25th annual conference on Computer graphics and interactive techniquesFull text available:  pdf(2.00 MB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: autocalibration, calibration, depth, display, image-based modeling, image-based rendering, intensity blending, projection, range, reflectance, spatially immersive display, virtual environments

11 Visualization: Rapid emission tomography reconstruction

Ken Chidlow, Torsten Möller

July 2003 Proceedings of the 2003 Eurographics/IEEE TVCG Workshop on Volume graphicsFull text available:  pdf(1.64 MB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

We present new implementations of the Maximum Likelihood Expectation Maximization (EM) algorithm and the related Ordered Subset EM (OSEM) algorithm. Our implementation is based on modern graphics hardware and achieves speedups of over eight times current software implementation, while reducing the RAM required to practical amounts for today's PC's. This is significant as it will make this algorithm practical for clinical use. In order to achieve a large speed up, we present bit splitting over di ...

12 Color gamut matching for tiled display walls

Grant Wallace, Han Chen, Kai Li

May 2003 Proceedings of the workshop on Virtual environments 2003Full text available:  pdf(676.72 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)